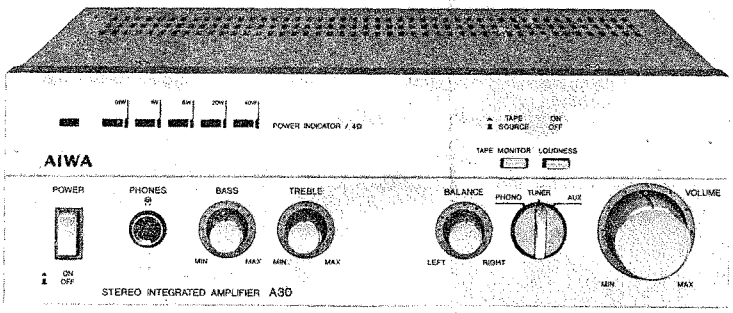
STEREO INTEGRATED AMPLIFIER

MODEL NO. SA-A30H,HU,U,E,G

AIWA®

[SERVICE MANUAL]

Code No. 20-300-000-64



DATE OF ISSUE 6/1980

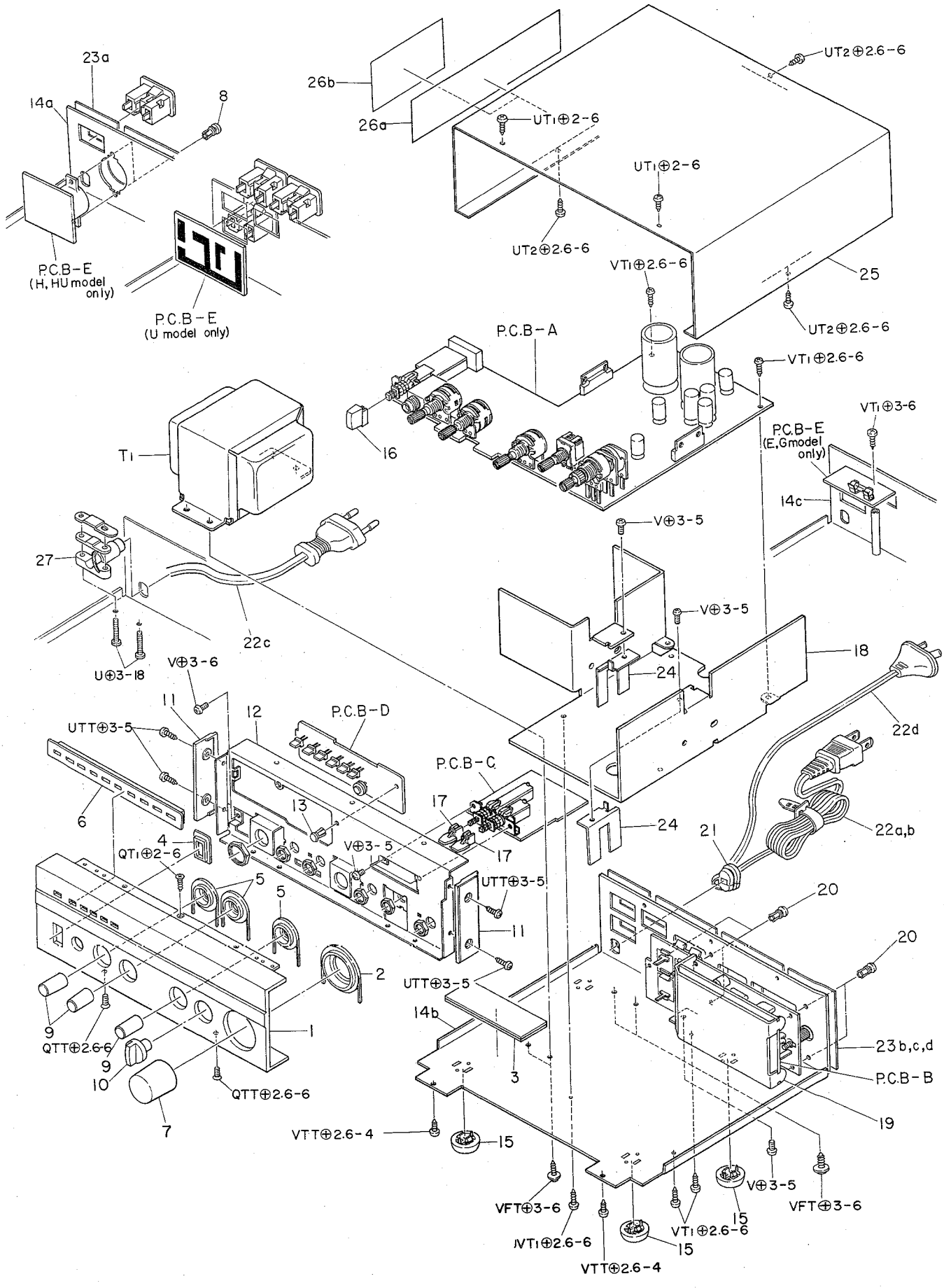
SPECIFICATIONS

Type:	Stereo integrated amplifier	
Semiconductors:	5 ICs, 5 transistors, 12 diodes, 6 LEDs	
Power source:	H, HU model	AC 110V/220V/240V switch changeable 50/60 Hz
	U model	AC 120V, 60Hz
	E model	AC 220V, 50/60Hz
	G model	AC 240V, 50/60Hz
Power consumption:	H, HU model	40W
	U model	40W
	E model	130W
	G model	110W
Dimensions:	210(W) x 71(H) x 200(D) mm [8-1/4"(W) x 2-3/4"(H) x 7-7/8"(D)]	
Weight:	3.15kg (6.9 lbs.)	
< Power amplifier >		
Effective output power:	20W + 20W (8Ω) U model 15 Watts per channel, Min. RMS at 8 ohms, from 20 Hz ~ 20 kHz, with no more than 1% Total Harmonic Distortion.	
Total harmonic distortion:	0.1% (1 kHz, 5W + 5W) U model Total Harmonic Distortion from 20 Hz to 20 kHz at 250 mW to 15 W power at 8 ohms 1% Max.	
Output bandwidth:	10 Hz to 20,000 Hz (Less than 1%) [Both channels driven, 8 ohms]	
Frequency response:	20 Hz to 20 kHz	

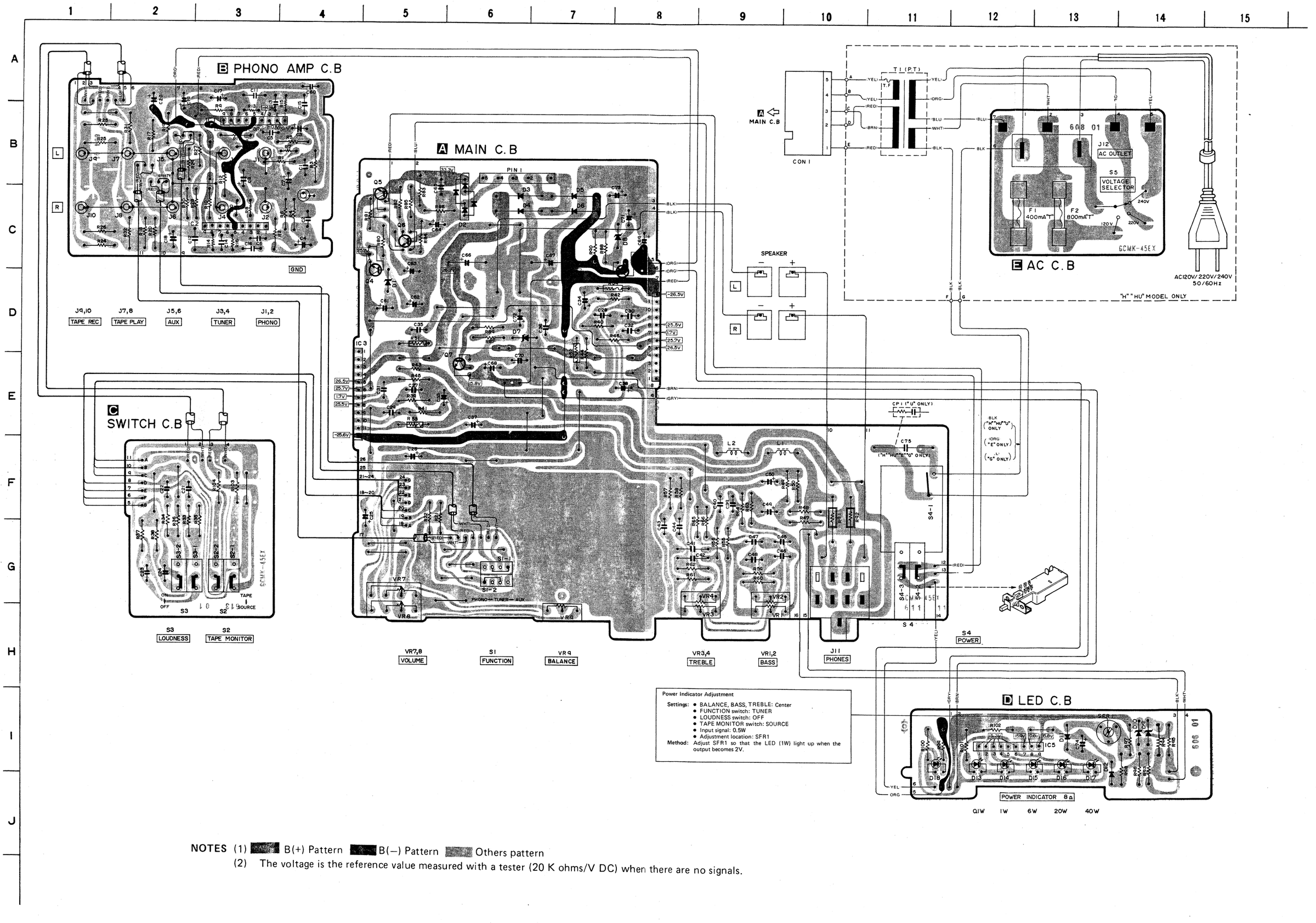
< Preamplifier >		
Signal to noise ratio: (Weighted)	PHONO more than 76 dB (IHF A curve, short circuit) TUNER, AUX more than 90 dB (IHF A curve, short circuit)	
Tone controls:	BASS	100 Hz ± 10 dB
	TREBLE	10 kHz ± 8 dB
Loudness:	100 Hz	6.5 dB ± 1.5 dB
	10 kHz	3.5 dB ± 1.5 dB
RIAA deviation:	±0.2 dB (20 Hz to 20.000 Hz)	
Channel separation: (Input terminal short)	PHONO, TUNER, AUX more than 40 dB	
PHONO overload level:	more than 100 mV (MM, at 1 kHz)	
Channel balance:	Less than 3 dB	
Residual noise:	Less than 2 mV	
Input jacks (Sensitivity/ input imepdance):	PHONO	2.5mV/47 kΩ
	TUNER	150mV/47 kΩ
	AUX	150mV/47 kΩ
	TAPE	150mV/47 kΩ
Output jacks (Level/output impedance):	TAPE	120mV/47 kΩ
	HEADPHONES 8 to 16Ω	
	SPEAKERS 8 to 16 Ω	

- The specifications and external appearance of this set are subject to change without prior notice.

EXPLODED VIEW



WIRING–1



Power Indicator Adjustment

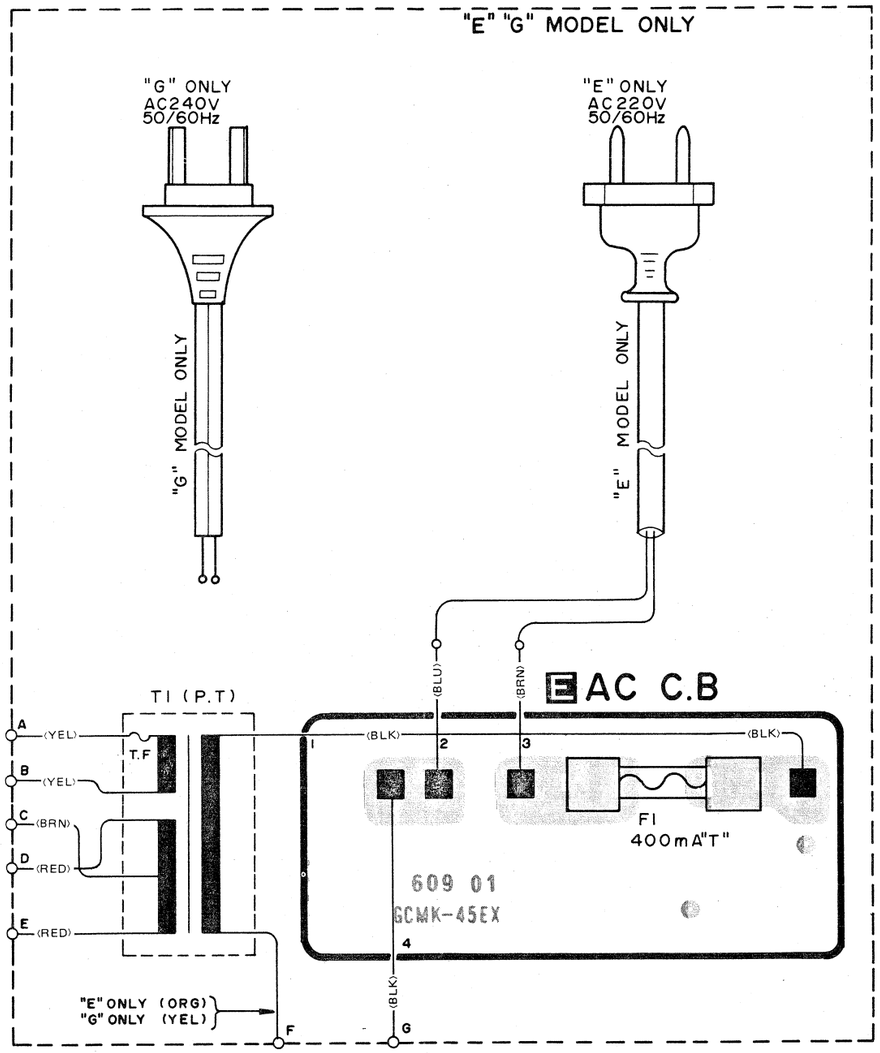
Settings:
- BALANCE, BASS, TREBLE: Center
- FUNCTION switch: TUNER
- LOUDNESS switch: OFF
- TAPE MONITOR switch: SOURCE
- Input signal: 0.5W
- Adjustment location: SFR1

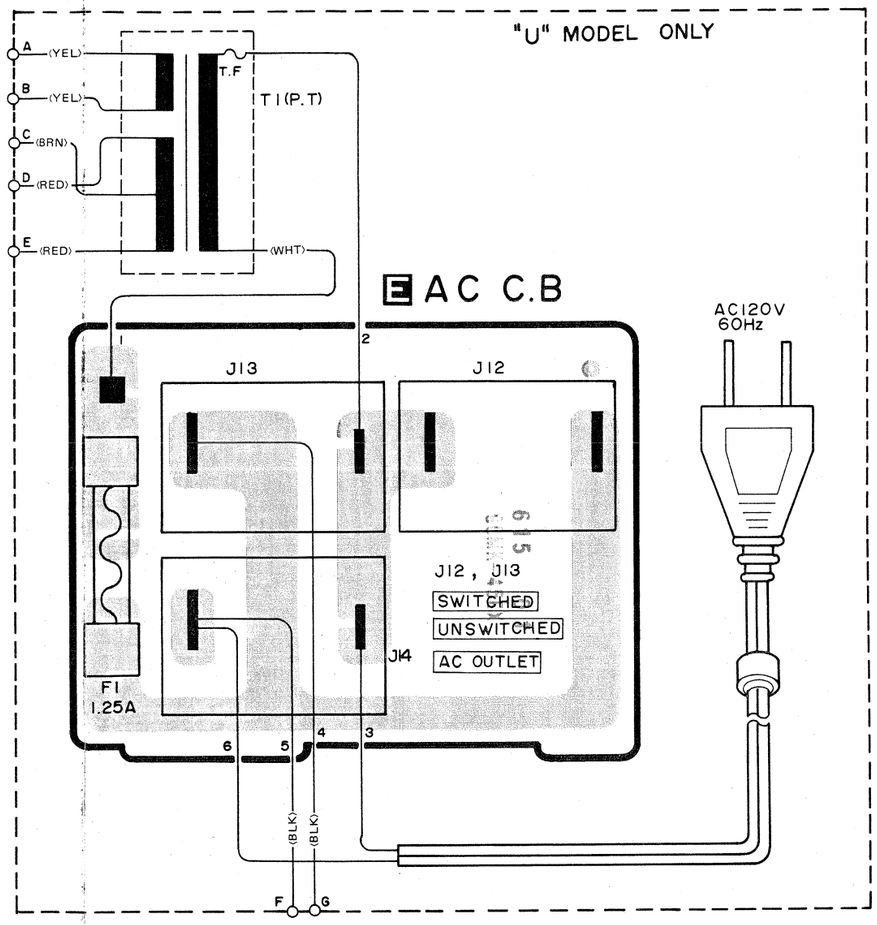
Method: Adjust SFR1 so that the LED (1W) light up when the output becomes 2V.

NOTES (1) B(+) Pattern B(–) Pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

WIRING–2


"E" "G" MODEL ONLY
"G" ONLY
AC240V
50/60Hz
"G" MODEL ONLY
"E" ONLY
AC220V
50/60Hz
"E" MODEL ONLY
(BLU)
(BRN)
E AC C.B
T1 (P.T)
A (YEL)
B (YEL)
C (BRN)
D (RED)
E (RED)
T.F
1 (BLK)
2
3
(BLK)
F1
400mA"T"
609 01
GCMK-45EX
4
(BLK)
"E" ONLY (ORG)
"G" ONLY (YEL)
F
G

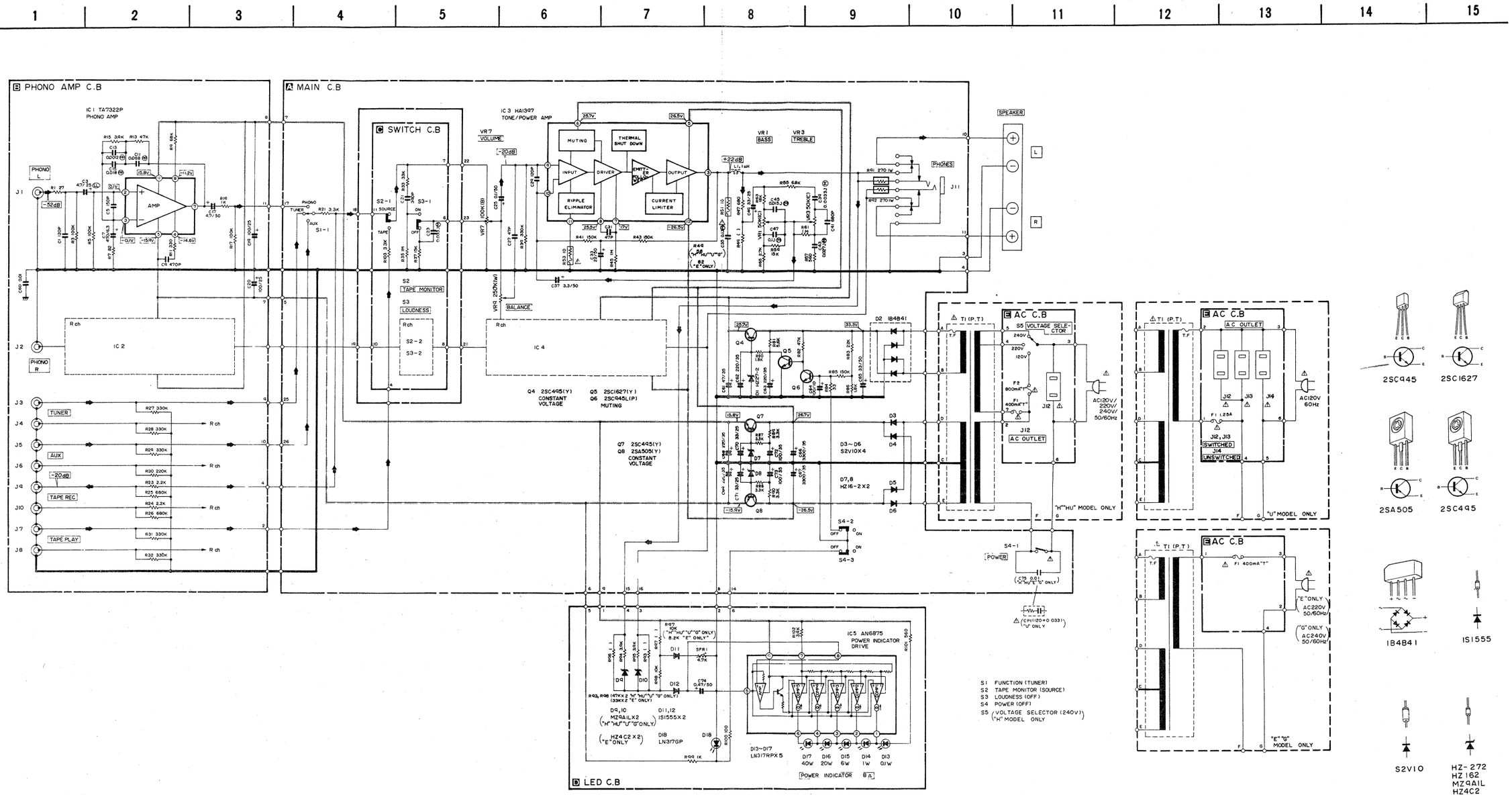

"U" MODEL ONLY
A (YEL)
B (YEL)
C (BRN)
D (RED)
E (RED)
T.F
T1 (P.T)
(WHT)
E AC C.B
1
2
J13
J12
J12 , J13
SWITCHED
UNSWITCHED
AC OUTLET
J14
F1
1.25A
6
5
4
3
(BLK)
(BLK)
F
G
AC120V
60Hz

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
		≪MAIN CIRCUIT BOARD SECTION≫
PCB-A	82-756-652-11	Main circuit board (H, HU, E, G model only)
PCB-A	82-756-611-01	Main circuit board (U model only)
IC3,4	87-027-640-01	IC, HA1397
Q4,7	89-304-954-01	Transistor, 2SC495(Y)
Q5	89-316-274-01	Transistor, 2SC1627(Y)
Q6	89-309-456-01	Transistor, 2SC945L(P)
Q8	89-105-054-01	Transistor, 2SA505Y
D1	87-027-479-01	Zener diode, HZ27-2
D2	87-027-376-01	Diode, 1B4B41
D3,4,5,6	87-027-455-01	Diode, S2V10F
D7,8	87-027-470-01	Zener diode, HZ16-3
L1,2	82-499-639-01	Choke coil, 1μH
⚠ CP1	87-028-036-01	Compound capacitor, 0.033μF + 120Ω (U model only)
J11	87-032-989-01	Jack, 6.3φ (PHONES)
VR1,2	87-021-631-01	Volume, 50kΩ-C (BASS)
VR3,4	87-021-632-01	Volume, 50kΩ-C (TREBLE)
VR5,6	82-751-607-01	Volume, 50kΩ-B (MIX VOLUME)
VR7,8	82-751-636-01	Volume, 100kΩ-B (VOLUME)
VR9	82-751-637-01	Volume, 250kΩ-W (BALANCE)
S1	82-735-602-01	Rotary switch (FUNCTION)
⚠ S4	87-031-572-01	Push-switch (POWER) (H, HU model only)
⚠ S4	87-031-573-01	Push-switch (POWER) (U model only)
⚠ S4	87-031-581-01	Push-switch (POWER) (E,G model only)
PIN-1	82-481-697-01	Pin, 5P
		< Resistors >
⚠ R51,52,53, 54	87-029-017-01	10Ω ¼w Fuse resistor
R91,92	87-025-154-01	270Ω 1w Metal film
		< Capacitors >
C52	87-015-246-01	4.7μF 25V Electrolytic LL
C62,63,68, 69	87-015-533-01	220μF 35V Electrolytic
C66,67	87-015-532-01	3300μF 35V Electrolytic
C75	87-019-104-01	0.01μF Ceramic (H,HU,E,G model only)
		≪PHONO AMP CIRCUIT BOARD SECTION≫
PCB-B	82-756-653-01	Phono amp. circuit board (H, HU, E, G model only)
PCB-B	82-756-612-01	Phono amp. circuit board (U model only)
IC1,2	87-027-529-01	IC, TA7322P
J1,2,3,4, 5,6,7,8, 9,10	82-756-640-01	Pin jack ass'y (PHONO, TUNER, AUX, TAPE PLAY, TAPE REC, GND)
		< Resistors >
R7,8	87-025-234-01	82Ω Metal film
R15,16	87-025-235-01	3.9kΩ Metal film
R13,14	87-025-236-01	47kΩ Metal film
		< Capacitors >
C3,4	87-015-246-01	4.7μF 25V Electrolytic LL
C20	87-015-488-01	100μF 25V Electrolytic
C7,8	87-015-523-01	470μF 6.3V Electrolytic
C13,14	87-014-121-01	0.0012μF PP
C15,16	87-014-122-01	0.018μF PP
C11,12	87-014-123-01	0.068μF PP
		≪SWITCH CIRCUIT BOARD SECTION≫
PCB-C	82-756-654-01	Switch circuit board (H, HU, E, G model only)
PCB-C	82-756-613-01	Switch circuit board (U model only)
S2,3	82-748-617-01	Push-switch (TAPE MONITOR, LOUDNESS)
		≪LED CIRCUIT BOARD SECTION≫
PCB-D	82-756-655-01	LED circuit board (H, HU, E, G model only)
PCB-D	82-756-614-01	LED circuit board (U model only)
IC5	87-027-635-01	IC, AN6875
D9,10	87-027-652-01	Zener diode, HZ-9A-1L (H, HU, U, G model only)
D9,10	87-027-393-01	Zener diode, HZ4C2 (E model only)
D11,12	87-027-097-01	Diode, 1S1555
D13,14,15, 16,17	87-027-542-01	LED, LN217RP (POWER INDICATOR)
D18	87-027-543-01	LED, LN317GP
SFR1	87-021-612-01	Semi-fixed resistor, 4.7kΩ-B
		≪AC CIRCUIT BOARD SECTION≫
⚠ PCB-E	82-756-608-01	AC circuit board (H, HU model only)
⚠ PCB-E	82-756-615-01	AC circuit board (U model only)
⚠ PCB-E	82-756-609-01	AC circuit board (E, G model only)
⚠ S5	87-031-551-01	Rotary switch (VOLTAGE SELECTOR) (H, HU model only)
⚠ F1	87-035-218-01	Fuse, "T" 400mA (H, HU, E, G model only)
	87-098-012-01	Fuse label, "T" 400mA (H, HU, E, G model only)
⚠ F1	87-035-298-01	Fuse, 1.25A (U model only)
⚠ F2	87-035-221-01	Fuse, "T" 800mA (H, HU model only)
	87-098-015-01	Fuse label, "T" 800mA (H, HU model only)
⚠	87-033-147-01	Fuse clamp
⚠ J13	87-032-937-01	AC outlet (H, HU model only)
⚠ J13,14,15	87-032-937-01	AC outlet (U model only)
		≪MISCELLANEOUS≫
⚠ T1	82-756-619-01	Power transformer (H, HU model only)
⚠ T1	82-756-621-01	Power transformer (E model only)
⚠ T1	82-756-622-01	Power transformer (G model only)
	87-034-934-01	AC power cord (H, HU model only)
	87-034-935-01	AC power cord (U model only)
⚠	87-034-877-01	AC power cord (E model only)
⚠	87-034-892-01	AC power cord (G model only)
⚠	87-085-165-01	Cord bushing

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

SCHEMATIC DIAGRAM



NOTES:

1) B (+) power supply B (−) power supply
2) Signal path
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
4) Resistors with no designation have a rated power of ¼W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
8) Explanation of symbols
   - (M) Mylar capacitor
   - (PP) Polypropylene film capacitor
   - (LL) Low-leakage capacitor
   - Printed resistor
   - Fuse resistor
   - Nonflammable resistor

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

PARTS LIST

MECHANICAL PARTS

■ * mark in this part list shows exclusive part (which is used) for only Model No. SA-A30.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1a	82-756-017-01		Panel, Front (H, HU, U, G model only)	*	1	
1b	82-756-019-01		Panel, Front (E model only)	*	1	
2	82-751-021-01		Decorative plate G, Volume knob	SA-C30	1	
3	82-748-217-01		Sheet, Insulation (U model only)	SA-C50	1	
4	82-745-012-01		Guide, Push-button C		1	
5	82-751-020-01		Decorative plate, Knob G	SA-C30	3	
6	82-749-206-01		Guide, LED	SA-P50	1	
7	82-748-002-01		Knob, Volume	SA-C50	1	
8	87-085-090-01		Nylon rivet 3—6.5 (H, HU model only)		2	
9	82-745-013-01		Knob		3	
10	82-753-006-01		Knob, Selector		1	
11	82-745-003-01		Panel L, Side		2	
12	82-756-205-01		Chassis, Front	*	1	
13	87-084-077-01		Nylon rivet 3.5—4.5		1	
14a	82-756-206-01		Chassis, Amp. (H, HU model only)	*	1	
14b	82-756-202-01		Chassis, Amp. (U model only)	*	1	
14c	82-756-210-01		Amp. chassis E ass'y (E, G model only)		1	
15	82-745-019-01		Foot		4	
16	82-745-010-01		Push-button C		1	
17	82-745-008-01		Push-button A		1	
18	82-756-601-01		Heatsink	*	1	
19	82-735-203-01		Shield plate		1	
20	87-085-102-01		Nylon rivet 3.5—5.5		5	
21	87-085-165-01		Cord bushing (H, HU, U model only)		1	
22a	87-034-934-01		AC power cord (H, HU model only)		1	
22b	87-034-935-01		AC power cord (U model only)		1	
22c	87-034-877-01		AC power cord (E model only)		1	
22d	87-034-892-01		AC power cord (G model only)		1	
23a	82-756-007-01		Jack plate (H, HU model only)	*	1	
23b	82-756-008-01		Jack plate (U model only)	*	1	
23c	82-756-004-01		Jack plate (E model only)	*	1	
23d	82-756-006-01		Jack plate (G model only)	*	2	
24	82-756-204-01		Plate spring, IC	*	2	
25	82-756-002-01		Cabinet, Steel	*	1	
26a	82-756-014-01		Name plate, Spec. (H, HU model only)	*	1	
26b	82-756-015-01		Name plate, Spec. (U model only)	*	1	
27	87-085-166-01		Holder, AC power cord (E, G, model only)		1	

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-756-853-01		Printed indiv., Packing	*	1	
2	82-750-852-01		Cushion L, Printed indiv.	ST-R30	1	
3	82-750-853-01		Cushion R, Printed indiv.	ST-R30	1	
4a	82-756-904-01		Instructions booklet (H, HU model only)	*	1	
4b	82-756-905-01		Instructions booklet (U model only)	*	1	
4c	82-756-906-01		Instructions booklet (E model only)	*	1	
4d	82-756-908-01		Instructions booket (G model only)	*	1	
5	87-056-009-41		Distributors list (H, E, G model only)		1	
6	87-056-032-01		Guarantee card (G model only)		1	
7	87-056-045-01		Guarantee card (HU, U model only)		1	
8	87-057-879-11		Label, AC power cord (K model only)		1	
9	87-051-171-11		Poly-vinyl sack (for instruction)		1	
10	87-056-034-01		Service station list (H, HU model only)		1	
11	87-056-035-01		Card, Limited warranty (H, HU model only)		1	
12	86-156-001-01		Handle		1	
13	87-032-845-01		Siemens plug (H, HU model only)		1	

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